MATERIAL SAFETY DATA SHEET

SRM Supplier: National Institute of Standards and Technology
Standard Reference Materials Program
Bldg. 202 RM 211
Gaithersburg, Maryland 20899

SRM Number: 987
MSDS Number: 987
SRM Name: Assay and Isotopic Standard for Strontium
Date of Issue: August 1994
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SECTION I. MATERIAL IDENTIFICATION

Material Name: Assay and Isotopic Standard for Strontium

Description: SRM 987 consists of approximately 1 g of highly purified strontium carbonate.

Other Designations: strontium carbonate; carbonic acid, strontium salt; native strontianite

Name	Chemical Formula	CAS Registry Number
Strontium Carbonate	$SrCO_3$	1633-05-2

DOT Classification: Not hazardous by DOT regulations

Manufacturer/Supplier: Available from a number of suppliers

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Component	Nominal Concentrations (%)	Exposure Limits and Toxicity Data
Strontium Carbonate	~ 100 %	No TLV-TWA established
		No toxicity data available

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Strontium Carbonate
Appearance and Odor: an odorless, tasteless, gray-white granular powder
Relative Molecular Mass: 147.63
Density: 3.7
Melting Point: decomposes at 1100 °C to SrO and CO_2
Solubility in Water: soluble in 100 000 parts water; soluble in 1000 parts water saturated with CO_2
Solvent in Other Solubility: soluble in dilute acids, ammonium salt solutions, and carbonated water

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point: N/A **Method Used:** N/A **Autoignition Temperature:** N/A

Flammability Limits in Air (Volume %): **UPPER:** N/A
LOWER: N/A

Extinguishing Media: This material is non-flammable. Use extinguishing media that is appropriate to the surrounding fire.

Special Fire Procedures: Since the fire may produce toxic fumes, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in the pressure-demand or positive-pressure code.

Unusual Fire and Explosion Hazards: This material is a negligible fire and explosion hazard when exposed to heat and/or flame; it may burn but does not ignite readily. Strontium carbonate in the presence of strong oxidizers presents a fire and explosion hazard.

SECTION V. REACTIVITY DATA

Stability: **__X__ Stable** **____ Unstable**

Conditions to Avoid: Avoid oxidizing materials.

Incompatibility (Materials to Avoid): See Section IV: *Fire and Explosion Hazard Data*

Hazardous Decomposition or Byproducts: Thermal decomposition products may include toxic and hazardous oxides of carbon and strontium.

Hazardous Polymerization: **_____Will Occur** **__X__ Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: **__X__ Inhalation** **__X__ Skin** **__X__ Ingestion**

Health Hazards (Acute and Chronic): Inhalation of strontium carbonate may cause nasal and respiratory irritation with sneezing and coughing. Skin and eye contact may cause irritation. Prolonged skin contact may cause dermatitis and continued eye exposure may cause conjunctivitis.

Ingestion of large doses of strontium carbonate may exert osmotic effects which tend to induce vomiting and diarrhea. With continued exposures, strontium tends to accumulate in the teeth and bones. Subjected to a chronic diet high in strontium and low in calcium, young guinea pigs developed severe bone deformities, loss of coordination, weakness, and hind leg paralysis.

Signs and Symptoms of Exposure: See Section VI: *Health Hazards (Acute and Chronic)*

Medical Conditions Generally Aggravated by Exposure: N/A

Listed as a Carcinogen/Potential Carcinogen:

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens		X
In the International Agency for Research on Cancer (IARC) Monographs		X
By the Occupational Safety and Health Administration (OSHA)		X

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Obtain medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain medical assistance.

Inhalation: If inhaled, move the victim to fresh air. If breathing is difficult, give oxygen; if the victim is not breathing, give artificial respiration. Obtain medical assistance if necessary.

Ingestion: If ingested, wash out mouth with water. Obtain medical assistance immediately.

TARGET ORGAN(S) OF ATTACK: skin and the skeletal system

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Avoid raising dust. Sweep up small spills and place into a clean, dry container for later disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

Waste Disposal: Follow all federal, state, and local regulations.

Handling and Storage: Persons handling this material should wear an air-purifying respirator with a high-efficiency particulate filter. The specific respirator selected must be based on contamination levels found in the workplace, must be based on the specific operation, must not exceed the working limits of the respirator, and must be jointly approved by the National Institute for Occupational Safety and Health (NIOSH) and the Mine Safety and Health Administration (MSHA). Additional protective clothing such as gloves, lab coats, and splash-proof or dust-resistant safety goggles should be worn.

NOTE: Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the laboratory.

Store material in a cool, dry, well ventilated area and protect containers from physical damage.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: MDL, Information Systems, MSDS *Strontium Carbonate,* June 2, 1999.
The Merck Index, 11th Ed., 1989.
The Sigma-Aldrich Library of Chemical Safety Date, Ed. II, 1988.